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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/935,264	08/22/2001	Lawrence W. Kessler	SS101	9554
24628	7590	05/13/2004	EXAMINER	
WELSH & KATZ, LTD 120 S RIVERSIDE PLAZA 22ND FLOOR CHICAGO, IL 60606			LARKIN, DANIEL SEAN	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/935,264

Applicant(s)

KESSLER ET AL.

Examiner

Daniel S. Larkin

Art Unit

2856

aw

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7,9,11,12,14,17,18,20,21,23,25,27,29,32-35,37,39 and 41-45 is/are rejected.
- 7) ☒ Claim(s) 3,6,8,10,13,15,16,19,22,24,26,28,30,31,36,38 and 40 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 3, line 4: The numeral "12" should be corrected to read -- twelve --.

Page 3, line 13: Should the term "part" be corrected to read -- parts --?

Page 7, line 5: Reference numeral -- 22 -- should be inserted after the term "package".

Page 8, line 1: Reference numeral "52" should be corrected to read -- 54 --.

Page 8, line 2: Reference numeral "54" should be corrected to read -- 52 --.

Page 8, line 24: The numeral "1" should be corrected to read -- one --.

Page 13, line 5: The numeral "10" should be corrected to read -- ten --.

Page 13, line 6: The numeral "200" should be corrected to read -- two hundred --. Appropriate correction is required.

Claim Objections

2. Claims 1-33 and 40 are objected to because of the following informalities:

Re claim 1, claim line 5: The article -- an -- should be inserted prior to the term "optical".

Re claim 1, claim line 6: The article -- a -- should be inserted prior to the term "second"; and the term "form" should be corrected to read -- from --.

Re claim 1, claim line 8: The article -- an -- should be inserted prior to the term "infrared".

Re claim 1, claim line 9: The article -- an -- should be inserted prior to the term "X-ray".

Re claim 1, claim line 10: The article -- an -- should be inserted prior to the term "electron".

Re claim 4, claim line 6: The article -- an -- should be inserted prior to the term "optical".

Re claim 4, claim line 7: The article -- a -- should be inserted prior to the term "second".

Re claim 4, claim line 9: The article -- an -- should be inserted prior to the term "infrared".

Re claim 4, claim line 10: The article -- an -- should be inserted prior to the term "X-ray".

Re claim 4, claim line 11: The article -- an -- should be inserted prior to the term "electron".

Re claim 15, claim line 2: The article "a" prior to the term "infrared" should be corrected to read -- an --.

Re claim 16, line 1: The term -- claim -- should be inserted prior to the claim dependency "15".

Re claim 17, claim line 6: The article -- an -- should be inserted prior to the term "optical".

Re claim 17, claim line 7: The article -- a -- should be inserted prior to the term "second".

Re claim 17, claim line 9: The article -- an -- should be inserted prior to the term "infrared".

Re claim 17, claim line 10: The article -- an -- should be inserted prior to the term "X-ray".

Re claim 17, claim line 11: The article -- an -- should be inserted prior to the term "electron".

Re claim 20, claim line 5: The article -- an -- should be inserted prior to the term "optical".

Re claim 20, claim line 6: The article -- a -- should be inserted prior to the term "second".

Re claim 20, claim line 8: The article -- an -- should be inserted prior to the terms "infrared" and "X-ray".

Re claim 20, claim line 9: The article -- an -- should be inserted prior to the term "electron".

Re claim 25, claim line 1: The article "a" prior to the term "infrared" should be corrected to read -- an --.

Re claim 30, claim line 2: The article "a" prior to the term "infrared" should be corrected to read -- an --.

Re claim 31, claim line 1: The term -- claim -- should be inserted prior to the claim dependency "30".

Re claim 32, claim line 11: The term -- said -- should be inserted prior to the term "first".

Re claim 40, claim line 2: The article "a" prior to the term "infrared" should be corrected to read -- an --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4, 5, 9, 17, 18, 20, 21, 25, 32, 34, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,999,836 (Nelson et al.).

With respect to the limitations of claims 1, 4, 17, 20, 32, and 34, the reference to Nelson et al. provides a method for high resolution imaging of a breast sample using collimated non-ionizing acoustic radiation and electromagnetic radiation in the visible/optical region or the infrared region. A radiation imager is provided for translating the detected non-ionizing radiation into a mammography image.

With respect to the limitations of claims 2, 5, 18, and 21, the superposition of the images is assumed to be transparent with respect to each other since the reference fails to expressly state that one image occludes the other.

With respect to the limitations of claims 9 and 25, the reference states that additional images are generated using infrared energy such that the infrared image is superposed on the acoustically generated image to thus reveal features detected during the generation of the infrared image.

With respect to the limitation of claim 35, the reference discloses that electromagnetic radiation in the visible/optical region is utilized to create a mammography image with the acoustic region.

With respect to the limitation of claim 37, the reference discloses that electromagnetic radiation in the infrared region is utilized to create a mammography image with the acoustic region.

5. Claims 1, 2, 4, 5, 12, 14, 17, 18, 20, 21, 29, 32-34, and 41-45 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 1-139044 (Ando et al.).

With respect to the limitations of claims 1, 4, 17, 20, 32, and 34, the reference to Ando et al. discloses an ultrasonic diagnostic apparatus whereby a ultrasonic probe is utilized to create an image plane A with a first transmitting-receiving wave to display on a picture as a freeze image. A second image plane B is formed to be displayed as a real time image that is superimposed on the freeze image. As shown in Figure 3(c) two separately generated images, Figures 3(a) and 3(b), are superimposed on each other.

With respect to the limitation of claims 2, 5, 18, and 21, reference to Figure 3(c) shows that the superposed images, Figures 3(a) and 3(b), are rendered in a transparent mode wherein one image can be seen through the other image.

With respect to the limitations of claim 12, the reference discloses that one additional image is a second acoustic/ultrasonic image generated at either the same or different depth as the first acoustic/ultrasonic image. As seen in Figure 3(b), the top portion of this figure as a small field of view than the representation shown in Figure 3(a), but a larger field of view towards the bottom of the figure.

With respect to the limitation of claims 14 and 29, the reference appears to disclose that both images are internal views such that anomalies in the sample are visible concurrently through both ultrasonic images.

With respect to the limitations of claims 33 and 41-45, the reference appears to use cross-correlation techniques to line up the features of Figures 3(a) and 3(b) to create the image shown in Figure 3(c).

6. Claims 1, 2, 4, 5, 12, 14, 17, 18, 20, 21, 29, 32-34, and 41-45 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,454,045 (Perkins et al.).

With respect to the limitations of claim 1, 4, 17, 20, 32, and 34, the reference to Perkins et al. discloses a method for identification and recognition of an item with ultrasonic patterns from item subsurface micro-features comprising generating a first acoustic/ultrasonic reference scan image (201) of a plane within a first bulk volume of the structural object; generating a second, new scan image (211) by interrogating the bulk volume a second or subsequent time by making a second or subsequent selection of a plane within the bulk material; comparing the identification reference to the new

scan using a mean squared distance between the aligned identification reference and the new scan.

With respect to the limitation of claims 2, 5, 18, and 21, the reference appears to show, as seen in Figure 2, that the identification reference and the new scan are superposed in a transparent mode such that one image can be seen through the other image.

With respect to the limitations of claim 12, the reference discloses various correction mechanisms for aligning the two images should the fields of view between the two images be different, col. 7, lines 14-67 through col. 8, lines 1-21.

With respect to the limitation of claims 14 and 29, the reference appears to disclose that both images are internal views such that anomalies in the sample are visible concurrently through both ultrasonic images.

With respect to the limitations of claims 33 and 41-45, the reference discloses that processing of the display signal undergoes filtering in order to reduce noise which in turn reduces the probability of false call, which is one type of error that can occur when images are being generated, col. 8, lines 9-21.

7. Claims 1, 2, 4, 5, 11, 17, 18, 20, 21, 27, 32, 34, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0018588 (Kusch).

With respect to the limitations of claims 1, 4, 17, 20, 32, 34, and 39, the reference to Kusch discloses a system and method for generating an image dataset comprising generating a first image dataset utilizing a C-arm x-ray apparatus (1); generating a

second image dataset from inside the body utilizing an acoustic/ultrasound apparatus (2); determining the position of each image dataset; and superimposing the image data of the first image data set and the second image dataset.

With respect to the limitations of claims 2, 5, 18, 21 the reference appears to suggest that the two image datasets are superimposed in such a manner that one image can be seen through the other image.

With respect to the limitations of claims 11 and 27, the reference discloses that one image dataset is generated using X-rays, and the second image dataset is generated using ultrasound. Both image datasets are superimposed upon each other to provide detailed 3D image utilizing two different techniques. Since both of these scans are utilized to map the patient, the Examiner argues that finding anomalies in both scans that can be found with each scanning technique would be an inherent feature of this apparatus.

8. Claims 1, 2, 4, 5, 17, 18, 20, 21, 32, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2001/0035871 (Bieger et al.).

With respect to the limitations of claims 1, 4, 17, 20, 32, and 34, the reference to Bieger et al. discloses a system and method for generating an image, whereby the system generates a first image dataset of a subject with a first system, such as an ultrasound system; generating a video/optical image of the subject with a second system; superimposing or fusing image data of the first image dataset acquired with the

first system and image data of the video image registered with the second system; and generating an image from the superimposed of fused image data.

With respect to the limitation of claim 2, 5, 18, and 21, reference to Figure 2 appears to suggest that ultrasonic image and the video image are fused together in a transparent fashion.

9. Claims 1, 4, 7, 17, 20, 23, 32, 34, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 2196206 (Wallace-Sims).

With respect to the limitations of claims 1, 4, 17, 20, 32, and 34, the reference to Wallace-Sims discloses superimposition in a video display system comprising generating a signal of a test piece (11) using an ultrasonic inspection system (12, 13); generating a second signal, in the form of a television/optical image with a video camera; and superimposing images of data output from a memory of ultrasonic signals with the camera video signal.

With respect to the limitations of claims 7, 23, and 35, the reference discloses that as the ultrasonic probe scans the test piece, defective portions of the test piece as giving a red image whereas sections having no defects are given a green image. These colors are superimposed on the image of the test piece.

10. Claims 1, 2, 4, 5, 11, 17, 18, 20, 21, 27, 32, 34, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,575,799 (Miwa et al.).

With respect to the limitations of claims 1, 4, 17, 20, 32, 34, the reference to Miwa et al. discloses an ultrasonic living body tissue characterization system whereby an ultrasonic probe is used to generate a tomographic image. The reference also discloses that more precise and reliable diagnostic information can be obtained by combining the ultrasonic image with the image from method such as ultrasonic reflection intensity X-ray, X-ray CT, NMR, and Radiosotope imaging and displaying the two of the tomographic images on a superimposed basis.

With respect to the limitations of claims 2, 5, 18, and 21, the superposition of the images is assumed to be transparent with respect to each other since the reference fails to expressly state that one image occludes the other.

With respect to the limitations of claims 11, 27, and 39, the reference states that one other imaging technique may include X-ray CT.

Allowable Subject Matter

11. Claims 3, 6, 8-10, 13, 15, 16, 19, 22, 24-26, 28, 30, 31, 36, 38, and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and/or corrected in accordance with the suggestions made in paragraph two above.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

The prior art to EP 1110508 (Alda et al.) discloses a method and apparatus for ultrasonic wave medical treatment using computed tomography, whereby an ultrasonic tomographic image is displayed as a slice region in superposition to a three-dimensional image generated by a compute tomography means, such as a MRI or an X-ray CT apparatus. The reference also discloses that ultrasonic tomographic images are displayed in real time with corresponding view of two-dimensional tomographic images obtained by the computed tomography means.

The prior art to JP 4-183446 (Doi et al.) discloses an operation arrangement aided with image synthesis whereby a three dimensional image of internal body organs are made in real time utilizing the merits of various medical photographing devices. The reference discloses that image data from a plural number of different sectional photographing devices such as X-ray CT and MRI are taken into an image-processing device consisting of computers. Both images are united into three-dimensional image and displayed on a CRT. A superimposer is utilized to superimpose the various images of the subject from the various fields of operation, X-ray TV image, ultrasonic image, etc. so that an exact positional relationship of the diseased part is recognized on the CRT.

The prior art to US 6,390,978 (Irion et al.) disclose an imaging method for determining physical or chemical conditions of tissues in human or animal bodies


comprising generating an ultrasonographic image of the sample and an optical image of the sample; and coupling the processing means of each respective imaging system such that the ultrasonographic image and the optical image can be displayed one superimposed to the other.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Larkin
AU 2856
10 May 2004



DANIEL S. LARKIN
PRIMARY EXAMINER